SOIL conservation

U. S. Department of Agriculture/Soil Conservation Service/February 1973

Achievement, 1972

SCS Annual Report

SOIL conservation

February 1973, Vol. 38, No. 7

SOIL CONSERVATION this month presents a review of SCS accomplishments during fiscal year 1972. It was truly a year of achievement. The facts and figures are strong evidence that SCS people across the nation did not let up in the tremendous task of safeguarding our soil and water resources. As Dr. Hugh Hammond Bennett, the first chief of the Soil Conservation Service, said 27 years ago, "The day will come when the combination of productive land and water will rank second only to people as the most important of all resources. Meanwhile, conservationists must carry on unfailingly in their efforts to stop erosion."

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Achievement, 1972

Summary of activities of the Soil Conservation Service for fiscal year 1972

". . . only a few years ago there was so little interest in this subject [soil conservation] over most of the country that I never dreamed I would live to see the progress that's been made today."

Dr. Hugh Hammond Bennett, first chief of the Soil Conservation Service, spoke those words 27 years ago. Progress since then has been considerable, and interest in conservation continues to rise.

In 1972, 34 million acres of land were adequately treated from a conservation standpoint. A few SCS-assisted conservation and environmental practices reported during the year include:

43,180 acres of farmstead and feedlot windbreaks planted.

398,443 acres of trees planted —in addition to windbreaks.

107,670 feet of fish stream improvement work.

2.3 million acres in minimum tillage.

10.9 million acres in improved pasture and hayland management.

53,339 ponds built.

51,995 acres of recreation area improved.

250 miles of streambank protection work done.

7.5 million acres of wildlife habitat management.

365,823 acres of woodland improvement.

19.3 million acres of crop residue management.

Resource technology development

In fiscal year 1972, SCS continued to refine its resource technology to meet challenges posed by the intensified use of soil, water, and related resources and by the impact of technology on environmental quality.

Agricultural waste management

Progress was made in developing and installing systems to recycle agricultural wastes. The techniques and practices used are aimed at incorporating the waste material into the soil and the utilization of nutrients in the wastes by plants.

About 5,100 systems involving lagoons, holding ponds or tanks, and irrigation or spreading systems are now installed and operating. These are very much a part of a conservation system. They not only help protect the

environment by keeping wastes out of lakes and streams, but also they help make rural areas a better place in which to live and work.

SCS is increasingly being called on by communities and their consultants for inventory and evaluation assistance in developing systems for recycling to the land the effluents and sludges from sewage treatment plants.

Soil data

A faster and more accurate method of recording resource data has been developed. Data reflecting the soil scientist's experience and research on the behavior of a given kind of soil are systematically coded and placed into the computer. These data can be retrieved quickly and used to show the suitability or limitations of the soil for various uses. Many other kinds of data important in planning and in making resource inventories also can be obtained. This method already has had extensive application, notably in the study of river basin areas.

A field test kit that allows soil scientists to perform onsite many analyses needed for the classification of soils also was developed. The kit, now being manufactured by a commercial firm, is part of the continuing SCS effort to improve the quality of soil surveys.

Plant materials

During the past year, the following new plants from SCS Plant Materials Centers passed field tests and were released jointly by SCS and cooperating state experiment stations and other federal agencies for commercial production:

—'Cave-In-Rock' switchgrass, for warm-season forage, wildlife cover, and critical area stabilization in the Corn Belt.

—'Rosana' western wheatgrass, an improved variety for forage and erosion control in Montana and Wyoming.

—'Palar' Wilman lovegrass, for forage and cover on the desert grasslands of Arizona.

—'Mackinaw' birdsfoot trefoil, an improved forage legume for the upper Corn Belt and Great Lakes areas.

—'Lathco' flatpea, for erosion control, beautification, and wildlife cover on highway banks, mine spoil areas, and shaded roads in woodlands in the East.

—'Emerald Sea' shore juniper, for stabilization and beautification on coastal sand dunes and inland sandy areas.

Many of these new plants should have a dramatic impact in their area of use and adaptation within just a few years. Plant materials are a major part of any soil erosion and sediment control program.

Surveying and monitoring

SCS intensified its emphasis on surveying and monitoring work as a major tool in improving the quality of living in rural and suburban communities.

Soil surveys

One major effort has been to accelerate the publication of soil surveys. Last fiscal year, 80 soil surveys were completed and sent to the printer—the greatest number ever in one year and twice the number submitted in fiscal year 1970. The 80 surveys represented about 42 million acres of mapped land. As of the end of fiscal year 1972, about 43 percent (815.3 million acres) of the land planned to be surveyed in the United States had been surveyed.

In addition, in fiscal year 1972, 449 special soil interpretation reports were prepared and made available for local use. These reports are published prior to the completed soil survey and represent an immediate response to requests from communities for basic soil information for land use planning. For example, a town may request a soil interpretation report for use in determining the suitability of sites for schools, housing, or sanitary landfills.

Soil surveys are vital in making sound land use decisions. In-depth discussions on land use problems and policies are in progress in virtually every state, and soil interpretations are increasingly recognized as a necessary part of land use planning. There is a growing awareness that any land use, whether for housing, crops, recreation, wildlife, or other purposes, must take into account the potentials of the soil. Soil surveys prepared by SCS and its cooperators are rapidly gaining recognition as one basis for developing local, state, and federal land use policies.

A book, *Soil Taxonomy*, describing the most modern system of soil classification, was completed in 1972 and sent to the printer.

Resource conservation assistance

The year 1972 probably saw an increased awareness on the part of government, governmental leaders, and the public of the seriousness, enormity, and costliness of public and private policies that allow soil erosion and sediment deposition to remain a critical threat to our resource base, the environment, and the quality of life.

SCS has been a leader for 37 years in carrying out a nationwide program to control erosion. During the first 25 years it seemed that mostly farmers understood the problem. But interest has grown, and today not only farmers but also doctors, engineers, law-

yers, businessmen, and other people have become leaders of conservation districts.

Today the causes of accelerated soil erosion and sediment damage are understood far and wide. And the technical assistance that SCS provides goes far beyond anything ever envisioned years ago by Hugh Bennett.

Help through conservation districts

During fiscal year 1972, the Soil Conservation Service continued its planning assistance to individual land owners and users and groups cooperating with the 3,024 conservation districts throughout the country. SCS has increased help to groups and organizations ranging from two or three land owners to many land owners.

SCS people helped prepare more than 71,000 conservation plans covering nearly 27 million acres and helped revise 29,570 plans covering 19.7 million acres. More than 594 million acres of nonfederal land in the United States now are covered by conservation plans that insure resource protection and proper land use.

Conservation districts, by the end of fiscal year 1972, had more than 2.2 million cooperators who were applying and maintaining soil and water conservation practices on 775.3 million acres.

SCS recognizes that conservation measures must be carefully planned, installed, and maintained. SCS provides onsite technical assistance for applying measures if needed to insure quality control and to implement new techniques. In fiscal year 1972, SCS provided 2.9 million technical services to 1.1 million individual land owners and users in conservation districts.

Wildlife. SCS environmental improvement work for wildlife was impressive in fiscal year 1972. SCS specialists helped land owners across the country improve more than 7.5 million acres of land and water for the specific benefit of wildlife—a 28 percent increase over 1971. In addition, stripcropping, range improvement, pond building (53,000 in 1972), and other wildlife-benefiting practices were put on millions of acres of land.

More than half a million acres of land were converted to wildlife-recreation in 1972, bringing the total to date to more than 13 million acres.

Conservation help for units of government

As the report by the Council on Environmental Quality stated, "A quiet revolution is going on throughout the nation." Public awareness is causing local and state governments to become more active in environment improvement programs.

As a result of public concern, many local governments have enacted ordinances that require conservation principles to be incorporated into development plans. Such plans take into account the suitabilities and hazards inherent in the soils.

SCS has helped many local and state governments by giving them resource information and guiding them in its use to prepare programs and plans for making communities, villages, towns, counties, and states a better place to live and work.

In fiscal year 1972, SCS provided more than 100,000 technical services to 26,627 local and state governments and their agencies. That's an increase of 31.6 percent over 1971. About 530 local ordinances concerned with land use and erosion and sediment control have been put into effect by local governments.

More than 15,500 natural resource inventories and evaluations were prepared with SCS help, for a 42 percent increase over 1971. With such information local units of governments can develop quality standards for conservation land use and treatment.

In addition, SCS helped more than 2,400 public facilities, such as schools, find sites on suitable soils and topography. This assistance jumped 19.6 percent over 1971.

Watershed projects

Continued interest in Public Law 566 small watershed projects during fiscal year 1972 was reflected in the more than $66 million obligated for construction of multipurpose dams, floodwater-retarding structures, and other water management measures. An additional $11 million was obligated for structures in the 11 flood prevention projects authorized under an earlier act.

Hurricane Agnes, in June 1972, dramatically illustrated the effectiveness of the small watershed program. One hundred and sixty-one floodwater-retarding dams and 150 miles of channel work, costing $38 million, prevented an estimated $22.2 million in direct damages from this one storm. Every dam built with SCS assistance held. The structures suffered little damage and are ready to repeat their planned flood prevention function when needed.

In Pennsylvania, where all 67 counties were declared eligible for federal disaster aid following Hurricane Agnes, seven small watershed projects had been completed and 14 were under construction. Local officials of the town of Jim Thorpe, in Carbon County, estimated that a quarter of a million dollars in damages were prevented by the Mauch Chunk Watershed Project.

And in Virginia, it was reported that dams built through the Mountain Run Watershed Project in Culpeper County held back 1.8 billion gallons of water during the hurricane. Unlike the

Estimates of benefits gained in 1972 and since the PL-566 watershed program began.

1972	*Total*
$48 million in flood damages prevented	$270 million
1.8 million tons of sediment trapped	16.6 million
$56 million in benefits from erosion control and grassland improvement	$347 million
3,050 man-years of employment from construction	22,600
7,000 new jobs created in new and expanded businesses	almost 70,000
9 reservoirs for municipal and industrial water supply	a total of 75 reservoirs serving 364,000 people in 76 towns.
16 reservoirs with recreation facilities, providing 1.1 million annual user days	101 reservoirs providing a total of more than 6 million user days.

nearby communities of Rapidan and Remington, which were inundated by floodwaters, the town of Culpeper received only minor damage from flooding.

Originally designed to help control soil erosion, reduce sediment, and prevent floods, the watershed program has been expanded in recent years to provide water supply, recreation, fish and wildlife, and other positive community benefits. Watershed projects also bring new jobs to rural towns.

During fiscal year 1972, federal assistance in planning, preconstruction, or construction work was furnished to sponsors of 998 watershed projects. Initial agreements for construction were signed for 50 projects in 32 states. Sponsors of 361 projects had completed the construction of all engineering measures, and 333 of these projects have now completed all planned construction and related land-treatment work.

Local sponsors submitted 42 new applications for assistance during the fiscal year. Planning assistance was authorized for a total of 1,662 projects by the end of the year, leaving a backlog of 1,273 unserviced applications.

At year's end, a total of 1,060 projects had been approved for USDA assistance, with 49 plans awaiting administrative or Congressional approval.

River basin planning. The broad objectives of river basin planning correspond closely with those outlined in the SCS Framework Plan. River basin planning aims at meeting present and future needs and wants of the people by helping in the conservation, development, and productive use of the nation's natural resources.

River basin studies are increasingly incorporating environmental considerations and impacts. Environmental assessments are now a required part of all types of river basin surveys. Environmental quality is a major objective in the latest cooperative surveys, along with the objectives of national and regional economic development and social well-being. This is a recent giant step toward multiple-objective planning which is aimed at presenting to decision makers a complete and clear picture of alternative plans and effects.

Agencies of the U.S. Department of Agriculture—the Soil Conservation Service, Forest Service, and Economic Research Service—have participated in about 116 river basin studies in every state except Alaska, covering more than 80 percent of the nation's area. In 1972, 10 studies were initiated, and 9 were completed.

USDA agencies have participated in three types of investigations and surveys that differ in degree of intensity and level of coordination. *A comprehensive framework survey* in the major water resource regions is the first and broadest level of planning. This type of survey is carried out jointly by the concerned federal departments and the involved states and is coordinated at the federal level by the Water Resources Council. Twelve such surveys have been initiated; 8 essentially have been completed.

A *comprehensive detailed survey* is a more intensive study than a comprehensive framework survey. Twenty-two of these have been funded, including the Hawaii Regional Study and the Connecticut River Supplemental Study, and 15 have been completed.

The third type of study is the *cooperative survey* carried out by states and concerned federal agencies. These surveys are coordinated at the state level and, in most cases, are as detailed as comprehensive detailed surveys. Since 1960, USDA has participated in 82 cooperative surveys and has completed 26. Eight studies were initiated last year.

A recent bill has been introduced in the U.S. Congress for implementing the Lower Rio Grande Basin Plan; a River Basin Authority for implementing the Chickasaw River Basin Plan in Memphis, Tennessee, has been established; and multicounty environmental corridors in the Southern Minnesota River Basin have been established.

Flood hazard studies. In fiscal year 1972, SCS continued to provide technical data and assistance to states and local governments in identifying flood hazard areas and

in preparing flood plain management programs.

States and local governments are increasingly realizing the necessity for stringent controls on flood prone areas. SCS assists them by carrying out flood hazard analyses and related flood plain studies.

Widespread need for flood hazard information has accelerated the demand for this program the past several years. SCS has participated in this program in 18 states to date. Eight studies have been completed, and nine more are expected to be completed by July 1973.

The completed reports, which define the areas that are flooded at various frequencies, can be used as a basis for planning and regulations for flood plain use.

Flood insurance studies. The Soil Conservation Service is one of five federal agencies carrying out technical studies for the National Flood Insurance Program of the Department of Housing and Urban Development. SCS, to date, has been involved in studies in 128 communities in 34 states and Puerto Rico.

Communities applying for participation in the flood insurance program must agree to develop suitable regulations for flood plain use within a certain time period. Local officials and planners in many of the communities studied have asked SCS for additional data and interpretations to help them implement flood plain land use and management programs.

Resource conservation and development projects

During fiscal year 1972, 20 new resource conservation and development (RC&D) projects became eligible for planning assistance. Covering nearly 72 million acres, the projects are located in 21 states: Arizona, Arkansas, Colorado, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Georgia, Kansas, Maryland, Michigan, Mississippi, New Mexico, Ohio, Oklahoma, Rhode Island, Texas, West Virginia, and Wyoming. The purpose of these projects is to improve the use of each area's natural resources and the economic and social well-being of its people.

In September 1972, an additional 25 RC&D projects were authorized, making a total of 123 projects underway across the nation by the end of the calendar year.

RC&D projects have a high potential for raising incomes and increasing community facilities. The Lincoln Hills Resource Conservation and Development Project in southern Indiana is a good example of this. The first in the nation, the project became operational in October 1964. It takes in 1,005,440 acres of Spencer, Perry, Crawford, and Harrison Counties. The area, for 70 years, had been plagued by an outmigration of people. But the 1969 census reported more than 64,000 people in the four-county area, an increase of 4,000 from 1960. Local leaders attribute this increase in part to the RC&D project.

Project-sponsored demonstrations in modern timber resource development for local foresters, woodcutters, and sawmill operators have brought increased income and employment. Greater economy in timber production has led to increased contracts with paper factories and other wood users. The wood-chip business alone brings more than $850,000 to the area every year. Nearly all banks in the area tripled their deposits from 1964 to 1971, and tourism has become a major industry because of RC&D-sponsored recreation facilities and improved hunting in the area.

Environmental impact statements

By the end of fiscal year 1972, SCS had prepared 53 draft and 64 final watershed environmental statements and 18 statements on RC&D project measures. In addition, 1,400 environmental statements prepared by other agencies were reviewed.

SCS is continuing to work closely with the Council on Environmental Quality and the Environmental Protection Agency to improve guidelines and procedures and to clarify areas of responsibility.

In addition, SCS is strengthening its staff assignments and training programs to better meet environmental objectives. These efforts are resulting in broader public participation and in more comprehensive work plans.

Great Plains Conservation Program

SCS's final summary for the 1971-72 blow season showed wind erosion damage in the Great Plains was 50 percent less than the figure for the corresponding period a year earlier. Nevertheless, the need for giving high priority to the Great Plains Program still exists.

Through long-term contracts under the Great Plains Program, farmers and ranchers apply needed conservation treatment on their land in 465 designated Great Plains counties. Priority is given to cropland that is unsuited for sustained cultivation but is still used for that purpose. About 20 percent of all cropland in Great Plains Conservation Program contracts is planned for conversion to grassland.

In fiscal year 1972, 2,440 farmers and ranchers placed nearly 5 million acres under Great Plains Program contracts. More than 42,500 farmers and ranchers now either have completed or have underway contracts for conservation treatment of more than 77 million acres.

Planned grazing systems. During the last fiscal year, more than 6.5 million acres were added to

the acreage already under planned grazing systems, bringing the total to 36.7 million acres.

The short-duration grazing system, a fairly new grazing technique, showed promise of greatly increasing the per acre production of meat and, at the same time, permitting a significant improvement in the ecological condition of grasslands.

More and more the use and management of native grazing lands is assuming the ecosystem approach as livestock operators become more aware of the benefits in planning for wildlife habitat, watershed protection, recreational values, and esthetic qualities in addition to improved forage supplies for livestock.

Management support

One of the SCS's key activities this past year was providing intensive training for SCS personnel in understanding and using the SCS Framework Plan, "Soil and Water Conservation for a Better America." Training meetings on the plan were held in all states.

In addition, increased effort went into the development of procedure and methodology to facilitate implementation of the "systems" concept of the plan. This effort was based on the need to provide program and management techniques for a "built-in" mechanism for relating individual parts of the plan to its overall thrust.

To do this, exploratory work was initiated to develop:

1. Quality standards to identify, measure, and describe the present condition and future potential of various resource management systems. The quality standards can help us to establish resource baselines and serve as a means of inventorying and monitoring resource conditions. They will provide some of the information required for extending multiobjective planning assistance to public and private sectors.
2. Planning and programing models to help SCS evaluate its contributions and effectiveness in terms of mission effects, benefits, and objectives and to determine how SCS can best program the use of resources in attaining its objectives. These models will enable SCS to better assist conservation district cooperators, project sponsors, and other groups in developing and implementing multiobjective plans. Conservation efforts will continue to be directed towards improving the well being of rural and urban residents.

Early in 1972, the Advisory Group for Implementing the Framework Plan was established. This group assists in developing and evaluating methods for putting the Framework Plan into action.

International assistance

In 1972, SCS completed technical assistance programs in Nigeria and prepared for completion of its program in India in 1973. Seven years of work in Nigeria resulted in the development of a countrywide soil and water conservation program with U.S.-trained Nigerian professionals ready to take over the work.

SCS continued its program of technical assistance, supported by the Agency for International Development (AID), in Tunisia and Thailand, with two men in each country.

Nine short-term consultants were provided during the year for work in six countries under agreements with AID, the Inter-American Bank, the Organization of American States, and the Government of Venezuela.

During the fiscal year, SCS assisted 325 individuals who came to the United States from 40 countries to observe and gain experience in various aspects of soil and water conservation. ♦

Summary of Progress, Fiscal Year 1972

Total reportable progress in soil and water conservation programs assisted by the Soil Conservation Service

Conservation plans and related services

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
District cooperators	No.	89,129	2,267,016
District cooperators	acres	32,049,222	775,308,252
Recipients of technical assistance	No.	1,134,871	—
Technical services	No.	2,985,702	—
Recipients applying practices	No.	664,660	—
Special mapping for planning and CNI	acres	13,123,171	302,392,017
Conservation plans prepared	No.	71,020	1,786,384
Conservation plans prepared	acres	26,535,597	594,426,913
Conservation plans revised	No.	29,570	—
Conservation plans revised	acres	19,796,300	—
Inventories and evaluations prepared	No.	75,467	—
Federal lands in coordinated conservation plans	No.	90	1,132
Federal lands in coordinated conservation plans	acres	1,186,302	13,519,403
State and county CNI reports	No.	83	—

Resource planning and implementation

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Services for resource planning	No.	101,006	—
Units of government assisted	No.	26,627	—
Resource plans prepared	No.	1,188	—
Inventories and evaluations for resource plans	No.	15,539	—
Land use regulations established	No.	528	—
Site selection for public facility	No.	2,442	—

Group plans, services, and installation plans

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Group conservation plans	No.	3,494	17,911
Group inventories and evaluation	No.	4,742	—
Groups assisted	No.	14,032	—
Services to groups	No.	79,458	—
Groups applying practices	No.	4,446	—

Great Plains Conservation Program

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
GP applications received	No.	2,942	48,214
GP applications received	acres	4,983,781	92,203,376
GP contracts signed	No.	2,440	42,524
GP contracts signed	acres	4,898,729	77,116,246
GP contracts terminated	No.	2,671	25,767
GP contracts terminated	acres	4,316,022	43,288,499
Cropland before GP contract	acres	657,195	11,870,467
Planned cropland conversions	acres	142,227	2,392,236

Servicing other USDA programs

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Referrals serviced:			
REAP—Fiscal year 1972	No.	265,860	—
REAP—Program year 1971	No.	—	247,897
Cropland Adjustment Program	No.	25	—
Appalachian Program	No.	1,182	—
Conservation plans approved	No.	754	—

Soil surveys

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Detailed soil surveys	acres	34,192,963	774,328,845
Reconnaissance soil surveys	acres	7,884,708	41,033,553
Total surveys	acres	42,077,671	815,362,398
Soil conservation surveys canceled	acres	1,009,950	—

Snow surveys and water supply forecasting

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Snow course measurements	No.	7,502	—
Aerial snow marker readings	No.	889	—
Mountain precipitation gage readings	No.	2,006	—
Soil moisture station readings	No.	1,297	—
River stations for which numerical forecasts issued	No.	947	—
Numerical forecasts issued	No.	2,863	—

River basin studies

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Flood hazard analyses	No.	1	—
Flood insurance studies	No.	21	—

Watershed and RC&D project measures

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Reservoir-type structure sites:			
Investigated	No.	449	—
Surveyed	No.	422	—
Reservoir-type structures:			
Designed	No.	782	—
Under construction	No.	1,131	—
Flow control structure sites:			
Investigated	miles	530	—
Surveyed	miles	621	—
Flow control structures:			
Designed	miles	718	—
Under construction	miles	1,137	—
Fish, wildlife, and recreation developments (public):			
Surveyed	No.	21	—
Designed	No.	64	—
Under construction	No.	22	—
Services provided on land rights, agreements, and contract awards	No.	22,983	—

Recreation developments

Progress items		Fiscal year 1972	Cumulative to June 30, 1972
Land owners and operators:			
Establishing first commercial enterprise	No.	1,713	64,315
Expanding or adding to recreation enterprises for primarily commercial use	No.	1,166	—
Changing to recreation enterprises as primary source of income	No.	181	11,810
Changing to recreation enterprises as primary source of income	acres	55,865	2,521,053
Establishing, expanding, or adding to recreation developments for primarily noncommercial use	No.	33,590	599,766
Establishing, expanding, or adding to public recreation developments	No.	854	41,744

Summary of Progress, Fiscal Year 1972—Continued

Total reportable progress in soil and water conservation programs assisted by the Soil Conservation Service

Practices		Fiscal year 1972	On the land June 30, 1972
Bedding	acres	29,405	730,149
Brush control	acres	4,090,040	50,594,356
Chiseling and subsoiling	acres	821,960	7,903,175
Clearing and snagging	miles	486	7,265
Commercial fish ponds	acres	7,340	67,757
Conservation cropping system	acres	20,127,220	204,906,360
Contour farming	acres	3,073,384	49,520,556
Critical area planting	acres	178,963	4,857,336
Crop residue management	acres	19,287,613	171,157,557
Dams, diversion	No.	360	27,431
Dams, multiple-purpose	No.	264	7,007
Dams, multiple-purpose	acre-feet	334,616	15,203,100
Debris basins	No.	2,971	77,705
Deferred grazing	acres	13,000,462	77,828,852
Dikes	miles	333	11,646
Disposal lagoons	No.	1,616	3,700
Diversions	miles	2,222	99,368
Drainage field ditch	miles	4,491	185,603
Drainage main or lateral	miles	4,642	373,316
Drains	miles	22,123	859,014
Farmstead and feedlot windbreaks	acres	43,180	742,342
Fencing	miles	5,137	493,183
Field borders	miles	1,123	46,304
Field windbreaks	miles	3,364	92,911
Firebreaks	miles	3,420	30,973
Fish stream improvement	feet	107,670	1,835,702
Fish raceways	feet	48,714	175,643
Fishpond management	No.	62,384	641,206
Floodwater diversions	feet	74,559	1,524,388
Floodwater retarding structures	No.	433	11,322
Floodwater retarding structures	acre-feet	172,453	5,679,604
Floodways	feet	49,131	4,284,394
Grade stabilization structures	No.	13,181	221,916
Grassed waterway or outlet	acres	79,440	2,095,851
Grazing land mechanical treatment	acres	30,377	1,433,633
Heavy use area protection	acres	2,404	122,864
Hedgerow planting	miles	357	24,368
Hillside ditches	miles	86	3,160
Holding ponds and tanks	No.	1,932	2,903
Irrigation canal or lateral	miles	171	49,530
Irrigation ditches and canal lining	miles	985	32,755
Irrigation field ditches	miles	1,471	126,952
Irrigation pipeline	miles	4,644	88,418
Irrigation pits or regulating reservoirs	No.	1,198	50,035
Irrigation storage reservoirs	No.	201	41,269
Irrigation storage reservoirs	acre-feet	12,115	8,917,640
Irrigation systems, sprinkler	No.	3,867	130,781
Irrigation systems, sprinkler	acres	297,829	7,805,171
Irrigation systems, surface & subsurface	No.	4,440	155,720
Irrigation systems, surface & subsurface	acres	409,924	15,144,371
Irrigation systems, tailwater recovery	No.	1,730	16,831
Irrigation water management	acres	3,474,383	21,331,242
Land grading, drainage	acres	28,213	502,650
Land leveling, irrigation	acres	296,128	11,267,037
Land smoothing	acres	199,574	7,159,085
Livestock exclusion	acres	465,551	13,821,385
Minimum tillage	acres	2,288,857	24,073,162
Mulching	acres	50,761	765,955
Open channels	miles	619	16,459
Pasture and hayland management	acres	10,992,017	65,972,292
Pasture and hayland planting	acres	3,114,219	70,502,583
Pipeline	miles	3,412	34,422
Planned grazing systems	acres	6,559,636	36,724,027
Ponds	No.	53,339	1,887,720
Prescribed burning	acres	455,841	4,745,891
Proper grazing use	acres	57,082,236	257,401,989
Pumping plant for water control	No.	3,049	86,104
Range seeding	acres	441,711	15,884,781
Recreation area improvement	acres	51,995	1,151,151
Recreation land grading and shaping	acres	38,614	478,449
Recreation trail and walkway	miles	705	9,748
Road access	miles	2,255	22,659
Spring development	No.	3,545	129,130
Stock trails and walkways	feet	335,397	22,710,937
Streambank protection	miles	250	8,534
Stream channel stabilization	miles	32	1,035
Stripcropping	acres	413,889	23,327,947
Structures for water control	No.	65,664	2,026,183
Terrace, basin	miles	156	2,170
Terrace, gradient	miles	9,700	779,489
Terrace, level	miles	6,778	386,849
Terrace, parallel	miles	5,769	81,135
Total terraces	miles	22,403	1,249,643
Toxic salt reduction	acres	42,692	1,478,596
Tree planting	acres	398,443	19,710,982
Troughs or tanks	No.	11,841	510,236
Waterspreading	acres	125,469	1,134,817
Wells	No.	6,628	555,259
Wildlife upland habitat management	acres	7,110,649	39,717,878
Wildlife watering facility	No.	1,778	22,833
Wildlife wetland habitat management	acres	481,356	4,642,447
Woodland direct seeding	acres	13,477	727,782
Woodland improved harvesting	acres	1,340,488	30,940,555
Woodland improvement	acres	365,823	15,721,310
Woodland pruning	acres	12,553	140,337
Woodland site preparation	acres	248,483	4,588,409
Land treated			
Land protected during development	units	523	3,685
Land protected during development	acres	13,760	110,553
Land adequately treated	acres	34,167,099	—
Land adequately protected	acres	—	758,274,506
Land use conversions[1]			
Cropland to grassland	acres	997,736	26,426,080
Cropland to woodland	acres	37,094	2,965,135
Cropland to wildlife-recreation	acres	48,602	1,508,306
Cropland to "other"	acres	53,662	6,018,858
All other uses to cropland	acres	141,161	7,865,158
All other uses (except cropland) to wildlife-recreation	acres	477,119	10,500,616

[1] Conversions on the land June 30, 1972, are estimates of conversions since July 1, 1962.

Guidelines for tomorrow

by Vincent J. Price
Information Division, SCS
Washington, D.C.

The Soil Conservation Service in New York has assisted in preparing a comprehensive set of guidelines for developing the Cromline Creek watershed in Orange County, New York. The situation in this watershed is typical of that in many urbanizing areas, so the proposals could have nationwide applicability.

The watershed

The Cromline Creek watershed, 55 miles northwest of New York City in the Appalachian Mountains, is rapidly urbanizing. Agriculture, chiefly high intensity muckland farming and dairy farming, accounts for less than 15 percent of land use in the watershed. Moreover, real estate agencies own nearly all the dairy farms or have the option to buy.

So far, housing developments cover only 15 or 20 percent of the watershed, but the problems of poor land use have arisen.

SCS became involved in the Cromline Creek watershed through a Public Law 566 small watershed project. In planning land treatment measures for the project area, it was obvious to the SCS specialists that traditional agricultural measures such as stripcropping and contouring would be of little value in the face of the watershed's rapid urbanization.

In February 1971, Albert Addison, the SCS state conservationist, authorized Lloyd Wright, the local SCS district conservationist, to assist local officials in preparing a pilot program on land development and soil and water conservation in an urbanizing area. Recommendations for this program, organized as "Guidelines for Land and Water Development for the Cromline Creek Watershed," took 18 months to prepare.

A major first step was to complete a soil survey of the watershed. The SCS watershed planning party in New York conducted hydrology and hydraulics studies and delineated areas on the flood plain that would be flooded by rainstorms of 2-, 10-, 25-, and 100-year frequency, assuming various degrees of urbanization in the watershed, with and without proposed project measures.

In developing guidelines, Wright worked closely with the newly organized Cromline Creek Resource Planning Committee and its chairman, John Zangrillo. The committee is composed of town engineers from the four towns (geographic divisions) that share the watershed, representatives of the state Department of Environmental Conservation, two directors of the Orange County Soil and Water Conservation District, a consultive engineer representing development interests, a county planner, three farmers, Zangrillo, and Wright.

Studies and surveys made by SCS and the resource planning committee showed that serious problems of flooding, erosion, and pollution could result from urbanization of the watershed.

On flooding, the guidelines report said, "Increased runoff from steep slopes in developed areas is likely to increase the flooding problems. Areas that are not now shown as flood-plain areas may flood in the future if most of the watershed is allowed to be covered with hardtop."

On erosion and sedimentation, "The slope in the upper reaches of the watershed is steep. With urban development, erosion and sedimentation will be a major problem. Soil material will flow down the slow-moving stream and settle out as siltation."

On pollution, "Most of the soils in the watershed are not suitable for onsite septic tank disposal systems. Nonfunctional septic tank systems and siltation are likely to leave the streams very polluted."

The prospect for the creek was grim: "The creek is likely to be reduced to a highly silty stream after each rainstorm, and to a low-flowing sewage stream during the hot summer months."

The guidelines

The guidelines, offering an alternative to this prospect, are divided into six categories: flooding and ponding, erosion control,

land use, water resource development, wildlife and woodland, and recreation.

Flooding and ponding guidelines indicate how to reduce flooding in the watershed and downstream.

The first guideline proposes that construction be limited to areas above the floodline elevation for a 100-year frequency storm, based on 75 percent urban development on 1-acre lots, and assuming existing flood-plain storage. "Adding 75 percent urban development makes this higher than the present 100-year floodline," explained Wright. "The line would be about the level of the present 200-year floodline."

Other guidelines in this category recommend that drainage outlets for areas of less than 1 square mile be designed with a 25-year storm capacity and drainage outlets for areas of more than 1 square mile be designed with a 50-year storm capacity. They also recommended that towns prohibit permanent structures in areas subject to ponding or flooding as shown on the soil survey map. "You could fill in some of these ponds and build on them safely," said Wright, "but we feel there should be water storage capacity within the watershed, and these ponds help provide that capacity."

Erosion control guidelines would "make erosion control part of subdivision regulations" and would recommend the installation of "silt basins to control siltation when other methods will not keep the soil loss under 10 tons per acre over the development period."

Because the upper end of Cromline Creek is a good fishing area, the Department of Environmental Conservation recommended that water temperature for fish and wildlife should be considered before construction of a basin on trout streams. Wright explained, "DEC doesn't mind silt basins or other structures. They'd rather have them than excessive siltation—but they are right to want proper precautions."

Other erosion control guidelines warn against building on slopes of more than 15 percent and recommend the start of a streambank erosion control project.

The *land use* guideline advises local planners to "work out a system so that farming can be continued in urban areas, making maximum use of muckland and flood-plain soils."

Water resource development guidelines contain specific proposals on how to improve silt basins and holding ponds for recreation and wildlife purposes once the construction is completed and on how to protect ponds from siltation and pollution.

Wildlife and woodland guidelines include recommendations to improve areas that pond or flood and swampy areas for fish and wildlife. They also urge developers to protect as many existing trees and shrubs as possible during the building process.

Recreation guidelines start with the blunt advice: "Preserve a strip 200 feet wide on each side of the Appalachian Trail in its natural state without structures or significant land changes." The trail extends from Maine to Georgia. Most developers are required to leave some open space, so the resource planning committee hopes to encourage towns to require that the open space be left along the Appalachian Trail when developments are built in its vicinity.

The Cromline Creek watershed report includes a number of appendices: These:

—provide sample subdivision regulations that might be adopted by any of the towns within the Cromline Creek watershed.

—describe the principal vegetative and structural methods of controlling erosion in urban areas.

—explain soil surveys and how soil interpretations can be used.

—explain various land development methods, including the grid method and cluster development.

—give the procedure for use of hydrology and hydraulics data.

—show runoff curves from a storm before and after urbanization. The steep, upward curve of runoff after urbanization dramatically illustrates the dangers of thoughtless development.

What now?

The Cromline Creek watershed guidelines are recommendations, not regulations. But all four towns in the watershed are using some of the recommendations and three of the towns are in the process of incorporating a number of recommendations into local regulations.

In addition, the guidelines have been made available to nearby towns and villages. One town outside the watershed area has

Suburban development encroaching on prime farmland in New York's Cromline Creek watershed. A report outlining soil and water conservation for an urbanizing area recommends that this muckland be preserved for agriculture, with urbanization taking place in other, agriculturally less-valuable areas.

(Below) Richard Babeu, SCS area conservationist, on the left, and Lloyd Wright, SCS district conservationist, checking out a proposed development site in Orange County, New York. Unfortunately, Wright, Babeu, and the proposed site are all on top of the Appalachian Trail, which conservationists feel should be preserved.

incorporated some of the recommendations into law.

Opposition to the guidelines can be expected. Following them can cost a developer money, and they might preclude some development entirely. The Cromline Creek Resource Planning Committee is aware of this, but its first concern is optimum land use and the long-time good effects on the environment in the area. Committee members felt that all of the watershed's residents would benefit if developers use conservation practices, so they presented the developers with various alternative methods, but all the alternatives *start* from the committee's standpoint of good use of soil and water.

Time is running out for the Cromline Creek watershed. One development is built in a flood plain already, and another has been proposed for the Appalachian Trail. Developments have caused excessive erosion, sedimentation, and stream pollution. But Wright is optimistic. "This is a beautiful watershed. Properly developed, it could become an urban area and still be beautiful." ♦

For conservation's sake —and retirement

by Albert Howard
Conservation technician, SCS
Greenville, Missouri

One man is transforming a 1,280-foot mountain in the southeastern Ozarks into a showcase of conservation and ecology practices.

Dan Rothwell, of St. Louis, Missouri, has spent weekends and vacations for the past 13 years improving his 322 acres of rough land in Wayne County. Most of Mt. Finley, the 1,280-foot giant, is on his property, and most of it is covered with timber and granite outcroppings.

Rothwell enumerates such accomplishments as cleared trails usable by jeep and pickup truck, including an access road to the crest of Mt. Finley; food plots and watering ponds for wildlife; brush piles constructed over wooden tunnels and draintile as added protection for small game; bluestem and other grasses planted to improve habitat for wild turkey; stands of shortleaf pine started from seedlings.

"This is the center of black bear country in Missouri," said Rothwell. "Deer and wild turkey abound, and bobcat have been reported. Someday, with more acreage and all of it properly fenced in, I hope to introduce Russian wild boar."

Rothwell made his initial land purchase—85 acres—in 1959 and has since added three adjoining tracts. He eventually would like to own about 1,000 acres.

"When I bought the original tract, travel there was only on foot," he recalled. "Logging had been discontinued for about 50 years, but now nearly 2 miles of old log trails have been cleared or rerouted and made passable. The first road was up a 350-foot incline to the site of our wilderness lodge, which is livable throughout the year."

Rothwell is quick to give credit to the Soil Conservation Service, the Wayne County Soil and Water Conservation District, and the Missouri Department of Conservation for the help they gave him in developing a conservation plan for his property.

Rothwell makes about 25 trips a year to what he calls the "mountain ranch." Several groups of more than 30 teenagers from the St. Louis area have visited the Rothwell ranch during summer vacation for ecology hikes under adult supervision. Such visitors are shown the limed and fertilized food plots planted annually with a mix of milo, millet, and soybeans, and other plots seeded with Korean lespedeza and varieties of grasses.

They sit on the banks of the wildlife ponds, which have been stocked with fish. They are shown how animal den trees have been marked so they will not be cut down.

Controlled hunting is one of Rothwell's objectives for his Ozark ranch, but certainly not his prime motivation in improving the environment of Mt. Finley. He envisions an idyllic mountain home in retirement, but for now he has a wilderness hideout for escape from city pressures. ♦

Ecology class in progress. Three miles distant is 1,452-foot Clark Mountain, one of Missouri's highest points.

Tall grasses for small animal cover and erosion control ring this fish pond.

A retreat for summer weekends now; a retirement home in the future.

Fun—far from the crowds

by **Edgar Baumann**
District conservationist, SCS
Pendleton, Oregon

Families that just want a nice quiet place to have fun, away from the crowds that swarm to public recreation spots, are finding their way to Ray Eckles' new recreation site on his 300-acre farm near Pendleton, Oregon.

Eckles has parlayed some strong springs, which feed a creek cutting through the center of his farm, into a three-activity recreation site. Two spring-fed ponds were built and stocked with trout, providing a safe place for families to take their kids fishing.

He has also allowed the brush to grow along the creek, and excellent upland game bird cover is rapidly developing. To feed the birds hiding in the brush, Eckles leaves a narrow strip of unharvested wheat along the brushy creek banks. This half-mile-long sanctuary yielded a good crop of pheasant and quail last fall.

Water from the ponds can be released to flood several acres of pasture for migratory waterfowl. During hunting season this area attracts hunters almost as fast as it attracts ducks and geese.

Eckles markets his recreation via leases. A family, or a group, can lease the right to use the area for specific times. Eckles thinks that he will need one or two seasons' experience to determine how many people he can accommodate. He wants to avoid too much pressure on the wildlife and shoulder-to-shoulder hunters or fishermen.

Eckles is only one of several private landowners in the Pendleton area who are helping ease the pressure on public facilities that can't expand fast enough to hold the growing crowds. In many places, overcrowding threatens to destroy or severely damage the very quality that made the spot attractive in the first place.

In addition to the technical help Eckles got from the Soil Conservation Service through the Southern Umatilla Soil and Water Conservation District, he got plenty of encouragement from the Columbia-Blue Mountain RC&D Project recreation committee. Committee members studied the recreation picture in the RC&D project area and learned that recreation of all kinds was woefully short. They have urged several landowners in the area, who have the land, the temperament, and the time, to go into the income-producing recreation business.

Several private recreation spots in the area have opened recently or have been enlarged. Near Emigrant Springs State Park, 25 miles east of Pendleton, Don Windsor and Bob Trollier are developing two spring-fed trout ponds that will add diversity to the picnic facilities available at the state park.

Thornhollow Fish Farm, 10 miles up the Umatilla River from Pendleton, has five ponds. Three are stocked with Rainbow trout and Kamloops and are available for fishing—for a fee.

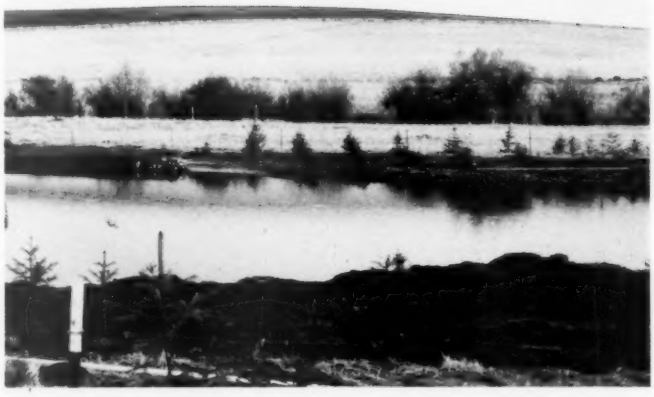
A recently completed recreation plan for Lehman Hot Springs and a loan from the Small Business Administration has put this resort on the map again. About an hour's drive south of Pendleton, the hot springs will be available for swimming, with hiking, fishing, and camping nearby.

To increase youth recreation opportunities, the Pendleton Kiwanis Club has signed a 10-year agreement with the U.S. Forest Service for use of the old Buck Creek Cabin at the forks of the Umatilla River. A recreation plan has been completed with

help from several local, state, and federal agencies. Kiwanis members have made many improvements to the old cabin, built during the depression by the Civilian Conservation Corps. A new fish pond has been built, and restrooms and cooking facilities have been improved.

Unlike the strictly private operations, the Kiwanis Club charges only for utilities. Civic and church groups often use the cabin. And the Pendelton schools go there for conservation education.

The Columbia-Blue Mountain RC&D Project area, like all of Oregon, is facing an increasing tourist and recreation load. But those who are willing to pay a little extra can still do their hunting, fishing, or camping away from the crowds. ♦



(Above) This pond on the Ray Eckles farm near Pendleton, Oregon, is already a popular get-away-from-the-crowds fishing spot. In a few years, evergreens will provide even more privacy and seclusion. The brush in the background is growth along a spring-fed creek where upland game birds travel safely between feeding areas.
(Left) Not quite sure what to expect because she has never fished before, Lori Kempf awaits some action at the end of her line. Pendleton, Oregon, schoolchildren can learn about fishing and the outdoors at the Kiwanis Club's conservation education facility in the Umatilla National Forest.

Cover for bare ski slopes

by James A. Weston
District conservationist, SCS
Ogden, Utah

What do you do about bare ski slopes in the arid West? You provide cover by seeding—or else a good part of the topsoil ends up at the bottom of the slope. Because of their steep grade, ski slopes are subject to severe erosion from spring snowmelt.

Two ski resort managers in Utah didn't wait to find most of their subsoil gone before establishing permanent cover on their ski slopes.

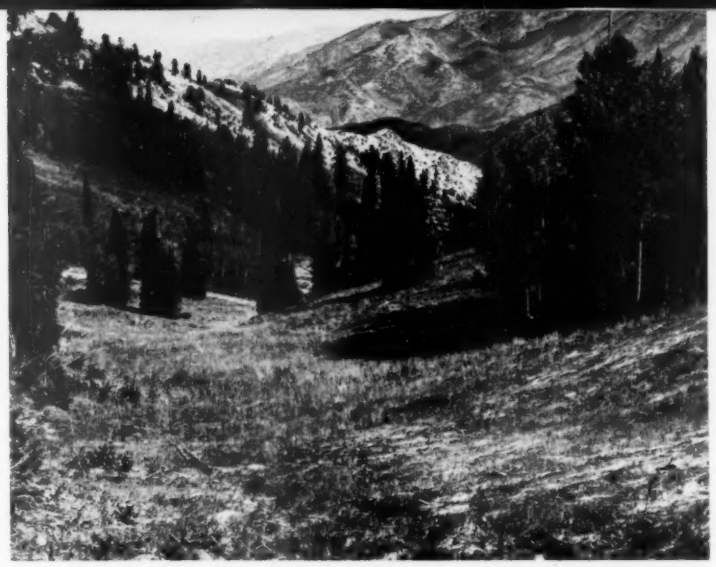
Dr. Alvin Cobabe, manager of Powder Mountain Resort in Ogden Valley, seeded crested wheatgrass on part of the slopes to establish sod. A straw mulch was used to protect the seedbed from erosion and hold the tiny seeds in place.

Seed and straw had to be applied by hand because the slopes are so steep. Dr. Cobabe had trouble maintaining the grass stand and, after discussing the problem with a Soil Conservation Service specialist, decided conditions were not favorable for growing crested wheatgrass.

An elevation of 9,000 feet, steep slopes, a short growing season, and excess moisture are not the best conditions for growing crested wheatgrass.

Most snowmelt in that area occurs late in June and early in July—the time when crested wheatgrass normally is headed. Several other species of grass were considered, but it was decided that the best bet would be a mixture of 'Durar' hard fescue and 'Tegmar' intermediate wheatgrass. This mixture requires little maintenance and provides good ground cover and protection in a short growing season.

How much topsoil will end up at the bottom of the slope before the skiing season begins?



Crested wheatgrass protects this slope.

Tegmar is a dwarf form of intermediate wheatgrass especially adapted for soil stabilization. It is easily established, sods rapidly, and is late maturing. It is adapted to areas where precipitation is 12 inches or more annually and has proved effective in stabilizing cuts and fills of roadways, strip mine areas, and ski slopes.

Durar hard fescue is a low-growing deeprooted perennial bunch grass that is well adapted to heavy use. It makes a good wear-resistant, low-maintenance turf in areas that receive 14 inches or more of precipitation annually. This grass performs well on north and east-facing slopes, makes a good soil-binding turf when seeded in pure stands, and is a good understory plant when seeded in mixtures.

At the Nordic Valley Ski Resort, about 15 miles out of Ogden, Utah, a considerable amount of smooth brome grass was planted on the ski slopes in the summer of 1971. The brome is providing adequate cover; Art Christensen, the resort manager, is happy with results so far. But, for comparison, he plans to plant a few pounds of the Durar-Tegmar combination.

"The first thing to do for erosion control on ski slopes in the arid West," advises Dr. Cobabe, "is to clear the slopes up and down. It's essential to leave small terraces or water bars across the slope to slow up water movement. After grading and terracing are completed, the slopes should be seeded."

Both resort managers have found the best time to seed is late in fall—or after the first skiff of snow. After the seed is sown, usually by hand, a straw mulch is applied over the seed. Straw left on the ground through the winter settles over the seed and makes a good seedbed—and it helps control erosion in spring when the snow melts.

Another method is to apply straw in the fall and plant in the spring. Dr. Cobabe believes that fertilizer is most important in getting a stand of grass on raw cut slopes. Just like any good farmer giving a healthy start to his crop, he applied 100 pounds of nitrogen per acre over the grassed ski slopes.

"There are still problems to be worked out in protecting ski slopes in the West," admitted Dr. Cobabe. "But we've come a long way with the conservation practices we're using." ♦

So you want to live in the country?

by William R. Hauck
RC&D project coordinator, SCS
Littleton, New Hampshire

Rear Admiral James T. Brewer stopped issuing orders when he left the Navy 15 years ago. Now, retired and living in a small Connecticut River Valley town in northern New Hampshire, he issues advice to hundreds of city people looking for a country home.

"If you expect to escape the rat race of the city," cautions the Admiral, "the first thing to do is to slow down. If you don't, all your frustrations will come with you to the country. Don't transplant your urban habits in a new setting. If you're planning to buy, take your time.

"Many rural newcomers think they left water problems back in the city. Look for wet basements and soil slippage around the house. Investigate water supply, septic tank capacity, town ordinances, local real estate costs, and all the things that are going to make you a satisfied country resident."

The Admiral knows what he's talking about. He and his wife chose a farm home in New Hampshire's North Country for retirement. With 15 years of Yankee rural living, he has become a leader in helping protect the rich natural resources of the North Country. As a selectman for the town of Piermont and ex officio member of the town's planning board, he has been instrumental in getting approval of subdivision regulations and zoning ordinances that preserve the natural charm cherished by Piermont's 467 residents.

As chairman of the Executive Board of the North Country Resource Conservation and Development (RC&D) Project, he has extended his advice and concern for prudent use of nature's resources to the northern half of the state.

"RC&D gets government agen-

The North Country Resource Conservation and Development Project takes in the four northern counties of New Hampshire—Belknap, Carroll, Coos, and Grafton. That's 50 percent of the land area of the state, and just over 100,000 people live there.

More than 90 percent of the project area is wooded; the forest-based industry plays a substantial role in the economic picture of the area, as well as the state. The recreation industry rates high also, and increasing pressures are being exerted by land speculators, mainly for second-home developments.

The RC&D project directors and staff give high priority to aiding towns in coping with such developments.

cies working together," said Admiral Brewer. "There was a time when it appeared to many landowners that each agency went its own way. But thanks to RC&D, there isn't any worthwhile project now that lacks the coordinated assistance to get it done. I have found this to be true, and, as a matter of fact, I don't believe there is much that anyone wants to do that RC&D can't find someone, somewhere to help do it."

After executive board approval, the Soil Conservation Service helps round up the needed resources to help put action into requests received from local communities.

New Hampshire has long been popular for second homes, but new interstate highways are bringing more people than ever into the state. "Many of these people, from all walks of life, trying to escape big-city tensions, are so eager to buy a house that they pay any price for any land or any structure," said Admiral Brewer. "That's why I have worked hard to get land use ordinances approved in Piermont.

"One developer from down country, for example, was stopped from building in Piermont on wetland with no sewage facilities. Without our ordinances, there would have been a lot of unhappy landowners within the first year. In general, land speculators shy away from towns having such restrictions."

The Admiral believes that haphazard development creates rural slums, denudes the land, fills the streams with silt, and cheats many unsuspecting house buyers.

A little time spent checking property values helps everyone except the land speculator, according to the Admiral.

"The house buyer in a hurry also threatens the agricultural industry," he explained. "The high price he pays for property unbalances the tax structure. It's taxing the farmers out of business."

In Piermont, 52 percent of taxes are paid by nonresidents. Piermont is an agricultural town but has many second homes and cottages dotting the landscape.

Admiral Brewer considers the area's RC&D project, with its executive board of 20 members, a valuable asset, capable of influencing and helping to control growth.

"I do not despair at the changes we are undergoing," he said. "They can be handled with common sense. We should welcome with open arms the properly motivated, prospective nonresident and the conscientious developer and help them to find a desirable site, priced fair and square, and taxed equitably.

"As for the despoiler, the in-and-outer, the fast-buck artist, we should reserve for him the cold shoulder, the frigid, wordless, baleful stare—commonly known in the North Country as Reaction No. 12." ♦

"Piermont is still basically an agricultural town, and we are working hard to protect this important industry. We don't want to see the farmer forced off his farm by high taxes or economic pressures exerted by developers looking for the quick buck." Alfred Stevens, Piermont Planning Board member, on the left, and James T. Brewer, Piermont Selectman, have worked diligently and successfully in getting subdivision regulations and zoning ordinances passed in Piermont.

Recon . . .

Flood plain park. A significant item in the Omnibus Rivers and Harbors Act passed by Congress last session calls for a flood plain park to replace channelization of the South Platte River in Colorado. Money originally authorized for channelization may now be used to acquire flood plain land for the park. This could be a precedent-setting action which provides an alternative to stream channelization, according to conservationist observers. The Rivers and Harbors Act, however, prohibited the "Proposed Principles and Standards" prepared by the Water Resources Council from going into effect prior to 1974.

No more corn patch. A sample survey made by USDA's Economic Research Service shows that nearly 60 percent of farmland sold for nonagricultural use was for housing. Subdivisions accounted for nearly 40 percent of the total. Only 15 percent of the acreage surveyed was sold for commercial or industrial use, and 14 percent was for recreational use.

South Carolina State College in Orangeburg County, under a $100,000 USDA grant, has begun a 5-year study on the economic feasibility of organizing marketing and supply cooperatives by low-income farmers. Specific objectives include analysis of membership, patronage, and performance of existing cooperatives of low-income farmers, and characteristics and attitudes of the farmers. Researchers also will attempt to gage the potential for organizing such cooperatives in South Carolina.

Keep America Beautiful Day has been scheduled for April 28. For the past 2 years Keep America Beautiful Day has been sponsored by the Boy Scouts of America, the Girl Scouts of the USA, and Keep America Beautiful, Incorporated.

Oceans of opportunity. Water, fresh or salt, is under close and constant scrutiny by Garden City (New York) High School students. Some of the students are engaged in bi-weekly sampling of waters and sediments from Manhasset Bay, Hempstead Harbor, and Shinnecock Inlet. Others collect samples from various coastal areas like Fire Island, Jones Beach, and Coney Island. They study waves, currents, and tidal actions. They note the mineral variations in different localities. They correlate the presence of microscopic shells in their samples with normal and abnormal ecological conditions.

Project Safeguard. USDA and the Environmental Protection Agency are cooperating on a new program, "Project Safeguard," designed to help farmers in 14 Southern States—especially those on small acreages—safely use chemical alternatives to DDT. The project is expected to help more than 170,000 farmers control pests with greater safety on small acreages of cotton, soybeans, and peanuts during 1973. The EPA cancellation makes illegal the use of DDT on these crops. The 14 states involved in the educational program are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Easy pickin's. Orchards of dwarf or semidwarf apple trees have proved profitable not only to the grower but also to the picker. A study in Washington state found that worker productivity averaged about 18 boxes per hour in dwarf orchards compared with less than 12 in orchards planted to standard size trees. During the 1968 harvest, workers' earnings —determined by the piece rate times the picking rate—averaged $3.37 per hour in dwarf orchards. Pickers in conventional orchards averaged $2.53.

Review

Suggested State Legislation, Vol. 32. *1973. Council of State Governments (Iron Works Pike, Lexington, Ky. 40505). 373 pp. $5.* The book contains models of legislation for use in writing bills for the 1973 sessions of state law-making bodies. Included are model laws developed at the May 1972 National Symposium on State Environmental Legislation for: Certification of operators of water treatment plants, water distribution systems, and waste water facilities; soil erosion and sediment control; toxic waste disposal act; air pollution control act; solid waste management and resource recovery incentives act; historic preservation legislation; flood hazard area regulation; and power plant silting guidelines.

Regulation of Flood Hazard Areas to Reduce Flood Losses, Volume Two, Parts V-VI. *1972. United States Water Resources Council (Washington, D.C. 20037). 389 pp.* $2. Volume Two is the result of followup studies to Volume One (Parts I-IV) published last year. Volume One explored selected issues in regulation of private and public land uses as a tool of flood plain management. It focussed primarily on basic regulatory issues and riverine flood problems. Volume Two explores in more detail techniques of regulating subdivisions of lands in flood hazard areas (Part V) and regulating coastal flood hazard areas (Part VI). It builds, with only minor repetition, on Volume One and contains additional draft ordinances dealing specifically with subdivision regulation and regulation of coastal flood hazard areas.

Federal Research Natural Areas in Oregon and Washington, A Guidebook for Scientists and Educators. By Jerry F. Franklin, Frederick C. Hall, C. T. Dyrness, and Chris Maser. *1972. USDA, Forest Service, Pacific Northwest Forest and Range Experiment Station (Portland, Oreg.). [415] pp., illus. $3.50.* A guide to the use of natural scientific preserves (Research Natural Areas) on federal lands in Oregon and Washington, this report gives detailed descriptions of physical and biological features, and maps and photographs, for each of the 45 tracts presently reserved. Indices to Research Natural Areas by vegetation type and plant and mammalian species are included.

Meetings

March

3–6 Hardwood Plywood Manufacturers Association, Disneyworld, Orlando, Fla.
3–6 American Camping Association, Philadelphia, Pa.
9–15 Associated General Contractors of America, San Francisco, Calif.
11–14 Farmers Union, Omaha, Nebr.
11–16 American Society of Photogrammetry, Washington, D. C.
11–17 National Wildlife Week.
16–18 National Wildlife Federation, Washington, D.C.
17–28 American Association of School Administrators, San Francisco, Calif.
18–21 The Wildlife Society, Washington, D.C.
18–21 North American Wildlife and National Resource Conference, Washington, D. C.
18–21 Association for Supervision and Curriculum Development, Minneapolis, Minn.
25–27 National Recreation and Parks Association, Southern Region, Memphis, Tenn.
28–30 National Conservation Tillage Conference, Soil Conservation Society of America, American Society of Agronomy, American Society of Agricultural Engineers, and National Association of Conservation Districts, Des Moines, Iowa
30–Apr. 3 National Science Teachers Association, Detroit, Mich.

April

1–5 American Concrete Pipe Association, Washington, D.C.
1–5 American Road Builders Association, Houston, Tex.
2–6 American Pulpwood Association, Atlanta, Ga.
4–6 Water Resources Congress, Washington, D.C.
7–12 National Planning Conference, Los Angeles, Calif.
8–13 Association for Educational Communication and Technology, Las Vegas, Nev.
9–11 National Water Safety Congress, Tulsa, Okla.
9–15 Earth Week
15–18 Association of American Geographers, Atlanta, Ga.
16–20 American Geophysical Union, Washington, D.C.
16–20 Western Snow Conference, Grand Junction, Colo.
23–25 National Academy of Sciences, Washington, D. C.

May

7–10 The American Institute of Architects, San Francisco, Calif.
7–11 League of Women Voters of the U.S., Washington, D.C.
13–15 National Forest Products Association, Washington, D.C.
13–17 American Water Works Association, Las Vegas, Nevada
13–18 National Council of State Garden Clubs, Seattle, Wash.

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From the Administrator:

Beyond figures

The annual report of SCS conservation activities during fiscal year 1972 is featured in this issue of SOIL CONSERVATION.

We can measure the impact of SCS-assisted conservation work in a number of ways. One way is by citing figures and compiling statistics. Another is by looking behind such statistical accounting of accomplishments and noting the physical, economic, and social benefits that come from this work.

Figures themselves are highly impressive. In 1972, for example, more than a million farmers and other landowners received technical help from SCS on their conservation and land use problems. And more than 34 million acres of land were adequately treated from a conservation practice standpoint.

Also, in fiscal year 1972, SCS and conservation districts provided more than 100,000 technical services to 26,627 local and state governments—an increase of 31.6 percent over 1971.

Any agency—any conservation district—can be proud of these statistics. But perhaps a better measure of progress is not solely figures in a report but what they represent in terms of improved communities, happier lives, and a better use of natural resources.

Recently, SOIL CONSERVATION had an article about people in Kemmerer, Wyoming, who, working through their RC&D project, helped provide a sanitary landfill and a new water treatment plant for their community. That's progress.

In this issue, we report how SCS and local people in Orange County, N.Y., helped develop guidelines to guard against excessive erosion, sedimentation, and stream pollution in an urbanizing area. That's progress.

And, a cooperator of the Box Butte County Soil and Water Conservation District in Nebraska was able to increase his cattle stocking rate to realize 10,000 additional pounds of beef annually while improving the condition of his pastures, with help from the Great Plains Conservation Program. That also is progress.

Soil and water conservation is planning for the improvement of soil and water and *people*. It is stimulating a better use of natural resources, helping farmers produce and live better, opening up new employment possibilities, improving recreation opportunities, and working for a better understanding and appreciation of the environment.

Further, some of the results of our work in 1972 will not be visible for another decade—when the new lake is built, the ranch plan is complete, or the urbanizing area has been built in a rational manner.

Statistics are a necessary tool in evaluating our activities. But beyond figures lie those changes and improvements that may never reach the computer but may result in better lives for our countrymen and our descendants. And that, too, is certainly progress.

Kenneth E. Grant